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Customer No.: 07278

Docket No.: 5986/1K435US1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Leon Axel

Serial No.: To be assigned

Filed: Concurrently Herewith

For: METHOD OF USING A MATCHED FILTER FOR DETECTING QRS
COMPLEX FROM A PATIENT UNDERGOING MAGNETIC RESONANCE
IMAGING

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

In order to comply with 37 CFR 1.97 and 1.98, attached hereto is a
copy of Form PTO-1449 and copies of the documents listed thereon.

In accordance with MPEP Sections 609 and 707.05(b), it is requested

that each document cited (including any cited in applicant's specification which is not repeated on the attached Form PTO-1449) be given thorough consideration and that it be cited of record in the prosecution history of the present application by initialing Form PTO-1449 next to the document. Such initialing is requested even if the Examiner does not consider a cited document to be sufficiently pertinent to use in a rejection, or otherwise does not consider it to be prior art for any reason, or even if the Examiner does not believe that the guidelines for citation have been fully complied with. This is requested so that each document becomes listed on the face of the patent issuing on the present application.

The present Information Disclosure Statement is being submitted in compliance with 37 CFR 1.56, but the citation of such document is not to be construed as an admission that such document is necessarily relevant or prior art. No representation is intended that the cited documents represent the results of a complete search, and it is anticipated that the Examiner, in the normal course of examination, will make an independent search and will determine the best prior art consistent with 37 CFR 1.104(a) and in the course of each search, will review for relevance every document cited on the attached form even if not initialed.

It is believed that no fee is due. However, if the Commissioner determines that a fee is due, the Commissioner is hereby authorized to charge Deposit Account No. 04-0100 for any deficiency.

Serial No. To be assigned


Docket No. 5986/1K435US1

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Early and favorable consideration is earnestly solicited.

Respectfully submitted,

Dated: July 24, 2003

A handwritten signature in dark ink, appearing to read "Gordon Coplein", is written over a solid horizontal line.

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Attorney for Applicant

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Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)			Complete if Known		
			Application Number	To be assigned	
			Filing Date	Concurrently Herewith	
			First Named Inventor	Leon Axel	
			Art Unit	To be Assigned	
Examiner Name	To be Assigned				
Attorney Docket Number	5986/1K435 US1				
Sheet	1	of	2		

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
		1 4,598,637	09/25/90	Aritomi	
		2 5,052,398	10/01/91	Gober	
		3 5,526,813	06/18/96	Yoshida	
		4 5,857,970	01/12/99	Purdy	
		5 5,997,883	12/07/99	Epstein et al.	
		6 6,070,097	05/30/00	Kreger et al.	
		7 6,144,201	11/07/00	Miyazaki	
		8 5,803,084	09/08/98	Olson	

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		Country Code ³ -Number ⁴ -Kind Code ⁵ (if known)				

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NON PATENT LITERATURE DOCUMENTS				
Examiner Initials	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²	
	9.	BERT-UWE KÖHLER et al., "The Principles of Software QRS Detection," <i>IEEE Engineering in Medicine and Biology</i> , January/February 2002, Volume 21, Number 1, pages 42-57		
	10	D EBENEZER et al., "Wave digital matched filter for electrocardiogram reprocessing," <i>J. Biomedical Engineering</i> , March 1993, Volume 15, Number 2, pages 132-134		
	11	Q. XUE et al., "Neutral-Network-Based Adaptive Matched Filtering for QRS Detection," <i>IEEE Transactions on Biomedical Engineering</i> , April 992, Volume 39, No. 4, pages 317-329		
	12	ANTTI RUHA et al., "A Real-Time Microprocessor QRS Detector System with a 1-ms Timing Accuracy for the Measurement of Ambulatory HRV," <i>IEEE Transactions on Biomedical Engineering</i> , March 1997, Vol. 44, No. 3, pages 159-167		
	13	DIMICK RN et al., "UTZ J. Optimizing electrocardiographic electrode placement for cardiac-gated magnetic resonance imaging," <i>Invest Radiol</i> , 1987, 22:17-22		
	14	LI C et al., "Detection of ECG characteristic points using wavelet transforms," <i>IEEE Trans Biomed Eng</i> , 1995; 42:21-28		
	15	FISCHER SE, "Novel real-time R-wave detection algorithm based on the vectorcardiogram for accurate gated magnetic resonance acquisitions," <i>Magn Reson Med</i> , 1999; 42:361-370		
	16	CHIA JM, "Performance of QRS detection for cardiac magnetic resonance imaging with a novel vectorcardiographic triggering method," <i>J Magn Reson Imaging</i> , 2000; 12:678-688		

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

{M: 598 61K435	Date Considered
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				Application Number	To be assigned
				Filing Date	Concurrently Herewith
				First Named Inventor	Leon Axel
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				Examiner Name	To be Assigned
Sheet	2	of	2	Attorney Docket Number	5986/1K435 US1

¹Applicant's unique citation designation number (optional). ²Applicant is to place a check mark here if English language Translation is attached.

(M:598 611K435		Date Considered	
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